

REMARKS/ARGUMENTS

In response to the Office Action dated January 26, 2004, Applicants have amended particular claims to more clearly define certain embodiments of the present invention. Claims 1-43 are pending. Reconsideration and allowance of all pending claims are respectfully requested.

Applicants acknowledge and appreciate the Examiner's indication that claims 21-43 are allowed.

Claims 1-10 and 14-19 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,100,526 (Mayes patent). Independent claims 1 and 14 have been amended to clarify that the recited embodiments operate in a transmission mode, not a reflectance mode. In particular, the optical sensing window and receiver elements in claim 1, and the passing and receiving radiation steps in claim 14, have been amended to clarify that these recited embodiments operate to receive for analysis "radiation transmitted from the radiation source through the stream of agricultural product and the optical sensing window." Claim 2 has been amended to clarify that the sensor head element operates in transmission mode, consistent with the recited receiver in claim 1.

In the Mayes patent, the sensing occurs in a reflectance mode, meaning that the light reflected from the product is detected and analyzed. In present invention, as defined in claims 1 and 14, the sensing occurs in a transmission mode, meaning that light transmitted through the product is detected and analyzed. Applicants respectfully submit that use of a transmission mode, as opposed to a reflectance mode, is a patentable, distinction.

In a transmission mode, certain amounts of the transmitted light are reflected by the product, absorbed by the product, and transmitted through the product. Using the light transmitted through the product means that the light has passed through all the layers of grain or other agricultural product and thus could provide more accurate analysis (as compared to the reflectance mode) and hence better quality of the resulting parameters. In the Mayes patent, the reflected light may not be received from all the layers of grain, which results in a distinct disadvantage. The Mayes patent clearly illustrates use of only a reflectance mode. In the Mayes patent, light source 10 is diffusely reflected from a flow of agricultural products for detection.

Claims 1 and 14 have also been amended to clarify a purpose of the optical sensing window by reciting: "the optical sensing window being configured, in comparison to the device,

to provide a narrower passageway for the stream of agricultural product to provide for a more uniform consistency in the stream of agricultural product."

Although U.S. Patent No. 5,241,178 (Shields patent) may be construed to disclose transmitting light through an agricultural product, it does not disclose or suggest use of an optical sensing window, as defined in claims 1 and 14. The Shields patent illustrates a rectangular transparent hopper and uses filters 38, outside the hopper, to transmit particular amounts of light at certain wavelengths. The hopper in the Shields patent has a constant cross-sectional shape, as shown in Figure 1.

The present application, as filed, recognized the importance of a configuration of the optical sensing window. "The structure of the optical sensing window provides for a narrower passageway for the stream of agricultural product compared with inlet 41. The narrower passageway provides for a more uniform consistency in the stream of agricultural product and provides for movement of the agricultural product that helps to prevent accumulation of dust or agricultural product on the sensing region formed by circular area 87. These features provide for more consistent and accurate readings of the light signal from the agricultural product." (Specification, p. 10, line 19 to p. 11, line 3.) The dimension of the optical sensing window, such as the width, can be carefully selected to ensure that a particular amount of the radiation is transmitted through the agricultural product, for example an ideal amount of light is transmitted to provide for an accurate analysis.

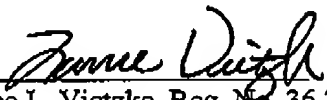
Applicants respectfully submit that dependent claims 2-11 and 15-19 are patentable because they include a combination of features defining at least a transmission mode for analysis of an agricultural product and use of an optical sensing window, which is patentably distinguishable over the Mayes and Shields patents for the reasons provided above.

Claims 12-13 and 20 were rejected under 35 U.S.C. § 103 as having been obvious over the Mayes patent and the Shields patent. Applicants respectfully submit that dependent claims 12-13 and 20 are patentable because they include a combination of features defining at least a transmission mode for analysis of an agricultural product and use of an optical sensing window, which is patentably distinguishable over the Mayes and Shields patents for the reasons provided above.

Based upon the above amendments and remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Respectfully submitted,

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